

MIC-7602-Z30GR PTZ 2MP 30x starlight enhanced gray

MIC inteox 7100i



- ▶ Starlight camera technology with excellent low-light sensitivity (color = 0.0047 lx) and High dynamic range (120 dB) (to see details in bright and dark areas simultaneously)
- ▶ Exceptional strength and ruggedness for any outdoor application including traffic monitoring (bridges, tunnels, or highways), perimeter protection, city surveillance, and mining
- ▶ Built-in Camera Trainer to train the camera to recognize user-specified target objects, such as moving and non-moving objects, to alert operators of unusual scene activity
- ▶ Edge intelligence with Intelligent Tracking and object detection even when the camera is moving
- ▶ Optional illuminator with multispectral LEDs that distribute IR light uniformly in the field (up to 550 m (1804.50 ft)) to avoid dark spots or an over-illuminated scene

Certifications and approvals

For a full list of all related certifications/standards, refer to the Product Tests Report, available on the online catalog, on the Documents tab of the product page for your device. If the document is unavailable on the product page, contact your sales representative.

EN 62368-1
 EN 60950-1
 EN 60950-22
 CAN/CSA-C22.2 No. 62368-1-14
 IEC 62368-1 Ed.2*
 IEC 60950-1 Ed.2**
 IEC 60950-22 Ed.2

Electromagnetic Compatibility (EMC)	Complies with FCC 47 CFR Part 15, ICES-003, and CE regulations, including latest versions of: EN 50130-4 EN 50121-4 (Railway applications) EN 55032 CISPR 32
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Marks	UL, CE, WEEE, RCM, EAC, VCCI, FCC, RoHS
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* Except the Steady-state test (6.2.2.2) for Australia
 ** Except the Steady-state test (5.4.10.2.3) for Australia

Product Safety	Complies with UL, CE, CSA, EN, and IEC Standards including: UL 62368-1 UL 60950-1, Ed. 2 CAN/CSA-C22.2 No. E60950-1-07
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Region	Regulatory compliance/quality marks	
Europe	CE	ST-VS 2019-L-001 DoC MIC Ultra Declaration of Conformity (DoC) - MIC IP ultra 7100i, MIC IP starlight 7100i
USA	UL	US-34299-UL 60950-1 for MIC IP ultra 7100i, MIC IP starlight 7100i

Parts included

Quantity	Component
1	MIC inteox 7100i camera
1	spanner tool [to remove and to attach the yoke caps in order to cant the camera if desired, and to remove the access plug from the camera head when installing the optional illuminator accessory (sold separately)]
1	base gasket
1	RJ45 coupler
1	MAC address labels
1	Quick Installation Guide
1	Safety instructions

Technical specifications

Imager	1/2 in. CMOS sensor
Effective Picture Elements (Pixels)	1937 x 1097 (2.12 MP)
Lens	30x motorized Zoom; 6.6 mm to 198 mm; F1.5 to F4.8
Field of View (FOV)	2.1° to 58.3°
Focus	Automatic with manual override
Iris	Automatic with manual override
Digital Zoom	12x
Day/Night switch	Automatic IR cut filter

Video performance - Sensitivity

(3100K, reflectivity 89%, 1/30, F1.6, 30 IRE)

Color	0.0047 lx
Monochrome	0.0013 lx
Gain control	AGC, Fixed, Region per pre-position
Aperture Correction	Horizontal and vertical
Electronic Shutter Speed (AES)	1/1 sec to 1/60,000 sec
Signal-to-Noise Ratio (SNR)	>55 dB
Backlight compensation (BLC)	On Off Intelligent Auto Exposure (IAE)

White balance	2000 K to 10,000 K ATW, AWB Hold, Extended ATW, Manual, Sodium Lamp Auto, Sodium Lamp
Day/night	Monochrome Color Auto
Defog mode feature	Improves visibility when viewing foggy or other low-contrast scenes.
Noise Reduction	Intelligent Dynamic Noise Reduction

Video performance - Dynamic range

High dynamic range	120 dB
Measured according to IEC 62676 Part 5)	106 dB

DORI	Distance	to	Object
	WIDE 1X	TELE 30X	Scene width
Detection 25 pixels/m (8 pixels/ft)	69 m (226 ft)	2095 m (6873 ft)	77 m (253 ft)
Observation 63 pixels/m (19 pixels/ft)	27 m (89 ft)	831 m (2726 ft)	31 m (102 ft)
Recognition 125 pixels/m (38 pixels/ft)	14 m (46 ft)	419 m (1375 ft)	15 m (49 ft)
Identification 250 pixels/m (76 pixels/ft)	7 m (23 ft)	210 m (689 ft)	8 m (26 ft)

Network

Standard/Video compression	H.265, H.264 (ISO/IEC 14496), M-JPEG, JPEG
Streaming	Four (4) streams: Two (2) configurable streams in H.264 or H.265 One (1) I-frames-only stream based on first stream One (1) M-JPEG Stream

Resolution (H x V)

1080p HD	1920 x 1080
720p HD	1280 x 720
1.3 MP 5:4 (cropped)	1280x 1024

Resolution (H x V)	
D1 4:3 (cropped)	704 x 480
640x 480	640 x 480
432p SD	768 x 432
288p SD	512 x 288
144p SD	256 x 144
Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP (V1, V3, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDAP, SOAP, Dropbox™, CHAP, digest authentication

Note: Dropbox is a trademark of Dropbox, Inc.

Ethernet	10BASE-T/100BASE-TX, auto-sensing, half/ full duplex
Encryption	TLS 1.2, DES, 3DES, AES
Ethernet connector	RJ45
GOP Structure	IP, IBP, IBBP
Overall IP Delay	60 fps: 166 ms (typical) 30 fps: 233 ms (typical)
Interoperability	ONVIF Profile S, ONVIF Profile G, ONVIF Profile T, GB/T 28181, Auto-MDIX

The table that follows shows the average typical optimized bitrate, in kbits/s, for different frame rates:

FPS	1080p		720p	
	H.264	H.265	H.264	H.265
60	4200	1649	2600	1249
30	2600	1413	1300	1096
15	2100	1157	1100	902
12	1800	1075	1000	841
5	1250	746	600	597
2	500	407	270	343

Actual bitrate may vary depending on the scene complexities and encoding configurations.

Miscellaneous

Sectors	4, 6, 8, 9, 12, or 16 user-selectable, independent Sectors, each with 20 characters per Title
Privacy Masks	32 individually configurable Privacy Masks; maximum 8 per Pre-position; programmable with 3, 4 or 5 corners; selectable color of Black, White, Gray, or Mosaic, as well as an "Auto" option in which the camera selects the most prevalent of the three colors in the background scene as the pattern color.
Virtual Masks	24 individually configurable Virtual Masks to hide parts of the scene (background motion such as moving trees, pulsating lights, busy roads, etc.) which should not be considered for flow analysis to trigger Intelligent Tracking.
Pre-positions	256 Pre-positions, each with 20 characters per Title
Guard Tours	Custom Recorded Tours - two (2), total duration 30 minutes: Pre-position tour - one (1), consisting of up to 256 scenes consecutively, and one (1) customized with up to 256 user-defined scenes
Supported Languages	English, Czech, Dutch, French, German, Italian, Polish, Portuguese, Russian, Spanish, Japanese, Chinese
Alarm control	Rules-based logic supports basic and complex pre-defined user-specified commands In its most basic form, a "rule" could define which input(s) should activate which output(s).
Washer Pump Interface	Control functions integrated. Alarm/Washer Interface Unit (MIC-ALM-WAS-24, sold separately) provides electrical interface to a washer pump device (user-supplied).
Camera status monitoring	Integrated sensors monitor operational status such as internal temperature, humidity level, incoming voltage level, vibration, and shock events.
Diagnostics	Various status conditions are tracked in the internal diagnostic log. Critical fault conditions will also be displayed on screen.

Mechanical

Drive Unit	Brushless, integral pan/tilt motor drive
Supported mounting orientation	Upright, Inverted, Canted
Pan Range	360° continuous rotation
Tilt Angle	290° (with or without illuminator)
Tilt Range	(With or without illuminator) Upright: -55° to +90°; Inverted: -95° to +55°; Canted: -80° to +65°
Variable Pan Speed	0.2°/second - 120°/second

Variable Tilt Speed	0.2°/second - 90°/second
Speed of Intelligent Tracking	>0.2°/second (minimum)
Speed of Pre-positions	120°/second
Pre-position Accuracy	+/-0.05°
Proportional Pan / Tilt to Zoom	Yes
Audible Noise	<65 dB

Electrical

Input voltage	21-30 VAC, 50/60 Hz; High Power over Ethernet 56VDC nominal
Power Consumption (typical), without illuminator	40 W
Power Consumption (typical), with illuminator	70 W
Current consumption, 24 VAC	~3.15A
Current consumption, High PoE	~1.5A
Redundant configuration	Connect both a High PoE Midspan and a separate 24 VAC power source. If either power source fails, the camera automatically switches to the other power source.
Surge protection	Built-in surge protection for power, data, and network interfaces (Refer to the A&E Specifications for details.)

User Connections

Accessory Interface/ Control Data	RS-485, simplex, user-selectable baud rate or auto-baud Used to communicate with optional Alarm/washer interface box (MIC-ALM-WAS-24) or with Bosch OSRD, Pelco P/D, Forward Vision, and Cohu serial protocols.
Chassis ground	Ground wire with connector lug
Input voltage, without illuminator	RJ45 connector to 60 W High PoE Midspan (NPD-6001B) or 95 W High PoE Midspan (NPD-9501A or NPD-9501-E), or 21-30 VAC, 50/60 Hz; Female-to-female RJ45 coupler included
Input voltage, with illuminator	RJ45 connector to 95 W High PoE Midspan (NPD-9501A or NPD-9501-E)* or 21-30 VAC, 50/60 Hz; Female-to-female RJ45 coupler included

Power, Camera	24 VAC (power supply)
Video and Control	RJ45 100BASE-TX Ethernet; RS-485 half-duplex 57600 baud (dedicated for MIC-ALM-WAS-24)

* Must purchase NPD-9501A or NPD-9501-E in order to use the High PoE solution.

Audio

Compression	G.711, AAC, and L16 (live and recording)
Signal-to-Noise Ratio (SNR)	Audio-in: 47 dBA (A-weighting) Audio out: 50 dBA (A-weighting)
Mode	Two-way, full duplex audio communication
User connections	Line in: 15k ohm typical, 1.0Vrms, max Line out: 0.8Vrms at 12K ohm, typical

Communications / Software Control

Serial protocols	Bosch OSRD, Pelco P/D, Forward Vision, and Cohu Note: A separate license (MVS-FCOM-PRCL) is required.
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Local Storage

Memory card slot	User-supplied full SD card (maximum 2 TB) on enhanced models only Recommended: Sony Industrial SD cards
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Environmental

The customer is responsible for making sure that the installation complies with the specified stresses that follow.

Note: Unit includes internal heater and fan.

Ingress Protection Rating/Standard	IEC 60529 IP66 / IP68 / Type 6P (dust and immersion) when installed on a MIC-DCA, or on a MIC wall mount with a MIC-SCA. IP67 (moisture and dust) with the IP67 Connector Kit (MIC-9K-IP67-5PK) on the connectors in the camera base. This kit is also required when using non-Bosch mounts.
External Mechanical Impact (IK Code / Impact rating)	IEC 62262 IK10 (excluding glass window)
Operating temperature	-40 °C to +65 °C (-40 °F to +149 °F)
NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile	-34 °C to +74 °C (-30 °F to +165 °F) for 15 hours

Cold Start-up Temperature	-40 °C (-40 °F) (Requires 60-minute warm-up prior to PTZ operations.)
Storage temperature	-45 °C to +70 °C (-49 °F to +158 °F)
Humidity	0-100%
Wind Load	Sustained winds up to 161 kph (100 mph) Upright or inverted camera with illuminator will hold its position in gusts up to 241 kph (150 mph). Canted camera with illuminator will hold its position in gusts up to 257 km/h (160 mph). Coefficient of Drag: <ul style="list-style-type: none"> Without illuminator 0.91 With illuminator 0.946
Vibration	IEC 60068-2-6: 10-150 Hz, 1.0G (0.5G on canted unit), 10m/s ² , 20 Sweeps NEMA TS-2 Section 2.2.8: 5-30 Hz, 0.5G MIL-STD-167-1A
Shock	IEC 60068-2-27, Test Ea: Shock, half sine impulse, 11 ms, 45G (20G on canted unit), non-repetitive shocks (three shocks in each axis and in each direction) NEMA TS 2 Section 2.2.9 Shock (Impact) Test Half sine wave 11 ms, 10G
MIL-STD-810 Military Standard Test Methods	MIL-STD-810-G, 501.5 High Temperature; MIL-STD-810-G, 502.5 Low Temperature; MIL-STD-810-G, 503.5 Temperature Shock; MIL-STD-810-G, 505.5 Solar Radiation; MIL-STD-810-G, 506.5 Rain; MIL-STD-810-G, 509.5 Salt Fog; MIL-STD-810-G, 510.5 Sand and Dust
Salt Mist Spray (Corrosion Test)	ISO 12944-6: C5-M (High); Aluminum Housing Components

Construction

Dimensions (W x H x D)	Without illuminator accessory or sunshield: <i>Upright, Inverted:</i> 287.93 mm x 400.34 mm x 210.65 mm (11.34 in. x 15.76 in. x 8.29 in.)
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	<i>Canted:</i> 260.25 mm (10.2 in.) x 374.5 mm (14.7 in.)
Weight	8.7 Kg (19.2 lb)
Window	Flat glass with defroster Defroster starts automatically at <= 5 °C (41 °F).
Construction Material	Anodized cast aluminum
Window Wiper	Integrated, long-life silicone wiper
Sunshield (to prevent sun load in hot climates)	Optional (sold separately)
Canting	On-site canting functionality
Color	Grey (RAL 7001)
Standard Finish	Corrosion-resistant, powder coat paint, sand finish

Ordering information

MIC-7602-Z30GR PTZ 2MP 30x starlight enhanced gray
Ruggedized PTZ camera; 1080p, 30x, starlight imaging, defroster, SD card slot.
open camera platform
Grey (RAL 7001) color. Sand finish.
Order number **MIC-7602-Z30GR | F.01U.386.565**
F.01U.381.147

Services

EWE-MIC7IF-IW 12mths full wrty ext MIC IP 7000i
12 months warranty extension
Order number **EWE-MIC7IF-IW | F.01U.382.951**